

## **Amendments to the Claims**

Please amend claims 1-8, 10-15 and 17-28 as shown in the following listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application.

1        1.        (currently amended) A sound reproduction or recording system comprising  
2        an audio signal input (~~1~~), an audio signal processor (~~2, DSP~~) and an audio signal  
3        output (~~1~~) wherein the audio signal processor comprises an attributor (~~25~~) for  
4        attributing a gain factor (~~z~~) to input signals (~~1n~~) as a function of input level (~~y~~)  
5        with a functional relationship such that the functional relationship between the  
6        gain factor (~~z~~) and the input level (~~y~~) comprises a first (~~1~~) and second range (~~11~~),  
7        the first range (~~1~~) covering amplitudes in which mainly voiced phonemes are  
8        situated, the second range (~~11~~) situated at input levels (y) lower than those for the  
9        first range (~~1~~) and covering input levels in which mainly unvoiced phonemes are  
10       situated, wherein the functional relationship is such that the average gain factor  
11       for the first range (~~1~~) lies at least 6 dB below that for the second range (~~11~~) and the  
12       average gain factor for the second range is greater than zero.

1        2.        (currently amended) A sound reproduction or recording system comprising  
2        a digital audio signal input (~~1~~), a digital audio signal processor (~~2, DSP~~) and a  
3        digital audio signal output (~~1~~) wherein the digital audio signal processor  
4        comprises an attributor (~~25~~) for attributing a gain factor (~~z~~) to input signals (~~1n~~) as  
5        a function of input level (~~y~~), wherein the functional relationship between the gain  
6        factor (~~z~~) and the input level (~~y~~) is such that a first (~~1~~) and second range (~~11~~) are  
7        present, the first range (~~1~~) extending from a maximum value input level (~~MAX~~)  
8        downwards at least 10 dB, the second range (~~11~~) extending at input levels below  
9        the first range (~~11~~), said second range covering a range of 10 db or more, wherein  
10       the average gain factor (~~z~~) in the first range (~~11~~) is at least on average 6 dB lower  
11       than in the second range (~~11~~) and the average gain factor for the second range is  
12       greater than zero.

1 3. (currently amended) A sound reproduction system as claimed in claim 2,  
2 wherein the attributor ~~(25) for attributing a gain factor (z)~~ is arranged such that the  
3 first range ~~(I)~~ extends from the maximum value input level (MAX) at least 15 dB,  
4 but not more 30 dB.

1 4. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1 wherein the attributor ~~(25) for attributing a gain factor (z)~~ is arranged  
3 such that the gain factor ~~(z)~~ in the first range ~~(I)~~ is at least 12 dB lower than in the  
4 second range ~~(II)~~.

1 5. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1, wherein the attributor ~~for attributing a gain (z)~~ is arranged such that the  
3 average gain factor for the first and second ranges I and II is less than ~~12 dB,~~  
4 ~~preferably less than 6 dB, even more preferably less than 3 dB.~~

1 6. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1, wherein the system comprises a dynamic level detector ~~(41, 111)~~  
3 having an input for the signal amplitude ~~(In)~~ and an output for providing an  
4 average level ~~(y)~~ over a predetermined time period.

1 7. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 6, wherein the predetermined time period ~~(T<sub>a</sub>, T<sub>r</sub>)~~ is 1 to 5 milliseconds.

1 8. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1, wherein the attributor ~~(25) for attributing a gain factor (z)~~ is arranged  
3 such that the gain factor ~~(z)~~ in the first range ~~(I)~~ is on average below ~~10 dB,~~  
4 ~~preferably below 6 dB.~~

1 9. (previously presented) A sound reproduction or recording system as  
2 claimed in claim 1, wherein the system comprises a determinator for determining  
3 a maximum input level of a received signal and a means for equating the  
4 maximum input level with the upper edge of the first range.

1 10. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1, wherein the attributor ~~(25) for attributing a gain factor (z) to input~~  
3 ~~signals (In) as a function of input level (y)~~ is arranged such that the functional  
4 relationship between the gain factor ~~(z)~~ and the input level ~~(y)~~ is such that between  
5 the first ~~(I)~~ and second ranges ~~(II)~~ ~~range~~ a third, intermediate range (III) is present  
6 in which the gain factor ~~(z)~~ changes gradually.

1 11. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1, wherein the system comprises a sensor ~~(26)~~ for measuring background  
3 noise ~~(N2)~~, and an adjustor for adjusting the gain factor ~~(z)~~ in the second range  
4 ~~(II)~~ in dependency on the measured background noise ~~(N2)~~.

1 12. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 1, wherein the attributor ~~for attributing (25) a gain factor (z)~~ is arranged  
3 such that the second range ~~(II)~~ is, at a lower boundary value juxtaposed by a  
4 fourth range ~~(IV)~~ in which the gain factor is substantially zero.

1 13. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 12, wherein the attributor ~~(25) for attributing a gain factor (z) to input~~  
3 ~~signals (In) as a function of input level (y)~~ is arranged such that the second ~~(II)~~  
4 and fourth ranges ~~(IV)~~ ~~range~~ are separated by a fifth ~~(V)~~, intermediate range  
5 within which the gain factor ~~(z)~~ gradually changes.

1 14. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 12 wherein the attributor ~~for attributing (25) a gain factor (z) to input~~  
3 ~~signals (In) as a function of input level (y)~~ is arranged such that that the slope of  
4 the decrease in the gain factor in the third range ~~(III)~~ is softer than the rise in gain  
5 factor in the fifth range ~~(V)~~.

1 15. (currently amended) A sound reproduction or recording system as claimed  
2 in claim 12, wherein the system comprises a measurer for measuring line or  
3 transmission noise ~~(N1)~~ or an input for a value for line or transmission noise ~~(N1)~~  
4 and an adjustor for adjusting the transition point or transition range ~~(V)~~ from the

5 second range (H) to the fourth range (~~IV~~) in dependence on amount of line or  
6 transmission noise (~~N1~~).

1 16. (previously presented) A sound reproduction system as claimed in claim 1,  
2 wherein the sound reproduction system is a mobile telephone system.

1 17. (currently amended) A sound reproduction system as claimed in claim 1,  
2 wherein the signal processor is a digital signal processor (~~DSP~~).

1 18. (currently amended) A method for audio signal enhancement in or for a  
2 sound reproduction or recording system in which an incoming audio signal is  
3 processed wherein input signals are multiplied with a gain factor (~~z~~), said gain  
4 factor being a function of input level (~~y~~), wherein the functional relationship  
5 between the gain factor (~~z~~) and ~~an~~ the input level (~~y~~) is such that ~~a first (I) and~~  
6 ~~second range (H)~~ first and second ranges for the gain factor are present, the first  
7 range (~~I~~) covering amplitudes in which mainly voiced phonemes are situated, the  
8 second range (~~H~~) situated at input levels (~~y~~) lower than those for the first range (~~I~~)  
9 and covering input levels in which mainly unvoiced phonemes are situated,  
10 wherein the functional relationship is such that the average gain factor for the first  
11 range (~~I~~) lies at least 6 dB below that for the second range (~~H~~) and the average  
12 gain factor for the second range is greater than zero.

1 19. (currently amended) A method for audio signal enhancement in or for a  
2 sound reproduction or recording system wherein input signals are multiplied with  
3 a gain factor (~~z~~), said gain factor being a function of input level (~~y~~), wherein the  
4 functional relationship between the gain factor (~~z~~) and an input level (~~y~~) is such  
5 that ~~a first (I) and second range (H)~~ first and second ranges for the gain factor are  
6 present, the first range (~~I~~) extending from a maximum value input level (~~MAX~~)  
7 downwards at least 10 dB, the second range (~~H~~) extending at input levels below  
8 the first range (~~H~~), said second range covering a range of 10 db or more, wherein  
9 the average gain factor (~~z~~) in the first range (~~H~~) is at least on average 6 dB lower  
10 than in the second range (~~H~~) and the average gain factor for the second range is  
11 greater than zero.

1 20. (currently amended) A method for audio signal enhancement as claimed in  
2 claim 18 wherein the functional relationship ~~relation-ship~~ between the gain factor  
3 ~~(z)~~ and the input level ~~(y)~~ is such that the gain factor in the first range ~~(I)~~ is at least  
4 12 dB lower than in the second range ~~(II)~~.

1 21. (currently amended) A method for audio signal enhancement as claimed in  
2 claim 18, wherein the functional relationship ~~relation-ship~~ between the gain factor  
3 ~~(z)~~ and the input level ~~(y)~~ is such that the average gain factor is less than ~~12 dB~~,  
4 ~~preferably less than 6 dB, even more preferably less than 3 dB.~~

1 22. (currently amended) A method for audio signal enhancement as claimed in  
2 claim 18, wherein the functional relationship ~~relation-ship~~ between the gain factor  
3 ~~(y)~~ and the input level ~~(y)~~ is such that the first ~~(I)~~ and second ranges ~~(II)-range~~ are  
4 separated by a third, intermediate, range ~~(III)~~ in which the gain factor changes  
5 gradually.

1 23. (currently amended) A method for audio signal enhancement as claimed in  
2 claim 18, wherein the functional relationship between the gain factor ~~(z)~~ and the  
3 input level ~~(y)~~ is such that the second range ~~(II)~~ is, at a lower boundary value,  
4 juxtaposed by a fourth range ~~(IV)~~ in which the gain factor is substantially zero.

1 24. (currently amended) Method for audio signal enhancement as claimed in  
2 claim 23, wherein the functional relationship between the gain factor ~~(z)~~ and the  
3 input level ~~(y)~~ is such that the second ~~(II)~~ and fourth ranges ~~range-(IV)~~ are  
4 separated by a fifth ~~(V)~~, intermediate, range within which the gain factor gradually  
5 changes.

1 25. (currently amended) Method for audio signal enhancement as claimed in  
2 claim 22, wherein the functional relationship between the gain factor ~~(y)~~ and the  
3 input level ~~(z)~~ is such that the slope of the decrease in the gain factor in the third  
4 range ~~(III)~~ is softer than the rise in the gain factor in the fifth range ~~(V)~~.

1 26. (currently amended) Method for audio signal enhancement as claimed in  
2 claim 18, wherein the functional relationship between the gain factor and the input  
3 level is such that unvoiced phonemes are at least 6 dB more enhanced than voiced  
4 phonemes.

1 27. (currently amended) Method for audio signal enhancement in a sound  
2 reproduction system in which an incoming audio signal is digitally processed  
3 wherein input signals are multiplied with a gain factor (~~z~~), said gain factor being a  
4 function of input level (~~y~~), wherein the functional relationship between the gain  
5 factor (~~z~~) and ~~an~~ the input level (~~y~~) is such that unvoiced phonemes are at least 6  
6 dB, ~~preferably at least 12 dB~~ more enhanced than voiced phonemes, wherein the  
7 gain factor for both the unvoiced phonemes and voiced phonemes is greater than  
8 zero, the gain factor for the unvoiced phonemes being fixed at a particular level,  
9 the gain factor for the voiced phonemes being varied such that the gain factor is  
10 decreased inversely with respect to the input level of the voiced phonemes.

1 28. (currently amended) Method for audio signal enhancement as claimed in  
2 claim 27, wherein the functional relationship between the gain factor and the input  
3 level is such the overall loudness increase is less than ~~6 dB, preferably less than 3~~  
4 dB.

1 29. (previously presented) Computer program comprising program code  
2 means for performing a method in accordance with claim 18 when said program is  
3 run on a computer.

1 30. (previously presented) Computer program product comprising program  
2 code means stored on a computer readable medium for performing a method as  
3 claimed in claim 18 when said program is run on a computer.

1 31. (previously presented) Computer program product comprising program  
2 code means for use in a system as claimed in claim 1, for performing the action  
3 specific for the invention.